A system, method and medium of controlling a semiconductor manufacturing tool using a feedback control mechanism. The feedback control mechanism includes features for receiving data points relating to an output of the tool. The data points include a current data point and at least one previous data point. The feedback control mechanism also includes features for determining whether the current data point is an erroneous outlier by comparing the current data point to a statistical representation of the at least one previous data point, and based on whether the at least one previous data point is an outlier. The feedback control mechanism further includes features for disregarding the current data point in calculating a feedback value of the feedback control mechanism if the current data point is determined as an erroneous outlier.